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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,558	12/14/2001	Sol P. DiJaili	21153-05927	8601

22913 7590 03/10/2004

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EXAMINER

NGUYEN, PHILLIP

ART UNIT PAPER NUMBER

2828

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/020,558

Applicant(s)

DIJAILI ET AL.

Examiner

Phillip Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 5-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1 and 5-16 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.



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### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/5 & 5/6/2002.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

Applicant is requested to resubmit Form PTO-1449 in IDS filed on 7/5/2002 because it is found missing.

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 5-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "the amplifier input and ballast laser output of the LSOA coupled between the first digital input and the digital output" which is not clear because it fails to support a structure of an optical logic gate. The claim also fails to provide a structure of the semiconductor laser with a ballast output.

Claims 5, 8, and 11 fail to provide the structure of an optical NOT gate.

With respect to claims 6-7 and 9-10, it has been held that the functional "whereby" statement does not define any structure and accordingly cannot serve to distinguish. *In re Mason*, 114 USPQ 127, 44 CCPA 937 (1957).

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Claim 12 recites in lines 10 and 13 “a ballast laser from the ballast laser output” which is not clear which ballast laser output from two recited LSOA. The claim fails to further narrow the limitation by reciting the end result of the device such as function of the NAND gate.

Similarly to claim 12, claim 13 fails to further narrow the limitation by reciting the end result of the device instead of providing more specific structure.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 5-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Song ('112).

With respect to claims 1 and 5, Song discloses in Figure 6 an NOT optical logic gate 30 which includes an digital input 31, a digital output 33, and semiconductor optical amplifier which inherently includes a ballast output.

With respect to claim 6, Song discloses the claimed invention as shown in rejection of claims 1 and 5, and further the first digital input being coupled to the amplifier and the ballast laser output is coupled to the digital output as shown in Figure 5 also.

With respect to claims 7 and 10, it is inherent that all lasers have a threshold.

With respect to claim 8, Song discloses in Figure 5 an NOR optical logic gate which includes first digital input 41 and a second digital input 32.

With respect to claim 9, Song discloses in Figure 4 a combiner having 2 inputs 24a and 21 coupled to first digital input and second digital input, and the output 25a coupled to the amplifier input 25 of the LSOA; wherein in ballast output 27 of LSOA of the optical gate.

With respect to claim 11, Song also discloses the optical logic device being configured to NAND gate and further comprising a second digital input for receiving a second digital input (X/Y) in Figure 8.

With respect to claims 12 and 13, the claim recites the result of each LSOA such as NOT gates or inverters being configured with another optical component which claimed “combiner” as an NAND gate. Song discloses the NOT gate and NAND gate in Figures 6 and 8.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song in view of DijJaili et al. ('104). Song discloses the claimed invention except for the LSOA being a vertical LSOA, traverse LSOA, or longitudinal LSOA. DijJaili discloses all of the claimed elements from LSOA. For the improvement of the optical logic device, it would have been obvious to the one having ordinary skill in the art at the time the invention was made to provide a VL SOA, TL SOA, LL SOA for LSOA as taught by DijJaili.

***Citation of Pertinent References***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The publication to Song discloses N-Valued Optical Logic Architecture and Method, U.S. Application Publication No. 2002/0001112

The patent to Dijaili et al. discloses Optical Signal Power Monitor and Regulation, U.S. Patent No. 6347104

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***Communication Information***


5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 571-272-1947. The examiner can normally be reached on 8:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PAUL IP can be reached on 571-272-1241. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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